necticut. Collected by Fernald, Long and Torrey on Block Island, R. I., in 1913 (G).

*P. VILLOSISSIMUM Nash. Collected in Hopkinton, R. I., in 1919 by Fernald, Woodward and Collins (NE).

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CONCERNING THE PROPER IDENTIFICATION OF LINNAEAN SPECIES, ESPECIALLY THOSE BASED ON MATERIAL COLLECTED BY CLAYTON

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ONE of the great basic collections of American plants is the collection made by Clayton in Virginia. This is preserved in the British Museum. Of it Gray (Scientific Papers of Asa Gray **2:** 9–10) says: "But still more important is the herbarium of Clayton, from whose notes and specimens Gronovius edited the 'Flora Virginica.' Many Linnaean species are founded on the plants here described for which this herbarium is alone authentic; for Linnaeus, as we have already remarked, possessed very few of Clayton's plants. The collection is nearly complete, but the specimens were not well prepared, and are not therefore always in perfect preservation." "From Gronovius, Linnaeus had received a very small number of Clayton's plants, previous to the publication of the 'Species Plantarum'; but most of the species of the 'Flora Virginica' were adopted or referred to other plants on the authority of the descriptions alone." (l. c. 6.)

We must also bear in mind that Linnaeus had actively assisted Gronovius in the Flora Virginica, which was published in 1739–1743. "Other work of Linnaeus in Leyden consisted * * * . He also helped Gronovius with his 'Flora Virginica' in which Linnaeus's principles were embodied." (Jackson, Linnaeus 165; Pulteney, Linnaeus 49.) Gronovius in the preface to his work (p. 3) acknowledged the assistance of Linnaeus as follows:

"Nullus igitur dubitavi specimina plantarum cum perspicacissimo Linnaeo examinare; utinam reliqua etiam cum doctissimo viro ad examen revocare mihi licuisset."

So when we find Linnaeus in 1753 in his Species Plantarum constantly referring to Gronovius' Flora Virginica, these references are to a work in which he had assisted and to a collection with which he was personally thoroughly familiar. And these references are of

the most definite nature, because they are to the specific specimens with which Gronovius and Linnaeus worked.

The situation with respect to the Linnaean herbarium on the other hand is very unsatisfactory and very exasperating. Its condition is fully discussed by the late Dr. B. D. Jackson (Proc. Linnean Society, 1912 Appendix). Information as to collector, place and time of receipt of a specimen is very often absent, and only arbitrary signs or such abbreviations as "K" for Kalm usually appear. Sometimes there are no data at all. The name and the number in the first edition of the Species Plantarum usually are given, additions made afterwards being given letters.

From three lists (not entirely accurate apparently) which are preserved we know what species Linnaeus had represented in his herbarium in 1753, in 1755 and in 1767. However, we cannot be sure that the specimens he had in those years are the specimens existing now, for he was constantly adding to his herbarium and it also suffered severe losses.

"The younger Linné complained of the terrible damage done by mice, moulds and insects * * * [he] must have withdrawn the damaged sheets." (Jackson l. c. 21.) And we further learn from the son that Linnaeus himself destroyed many of his specimens. "My late father weeded out his herbarium, while he was able to work, and seems to have burned all the duplicates; why, no one knows." (Fries, Linné **2:** 416, note.)

In short, in dealing with specimens now in the Linnaean herbarium, we are very frequently indeed dealing with specimens which were not specifically referred to by him in his works and which we cannot feel sure were in his possession at any particular date. All we can feel sure from his naming is that he referred a particular specimen to some particular species of his own. And unfortunately his knowledge of his own species was very frequently vague and unreliable. He was engaged in the herculean task of putting into usable form the works of his predecessors, and neither he nor anyone else under the circumstances could have been expected to have anything but the most general knowledge of the great mass of material with which he dealt.

Not infrequently, in dealing with one of the American species of Linnaeus we are confronted with the choice of applying a name given by him either (1) to a specimen of Clayton's collecting

which is definitely cited by Linnaeus and which we know he studied but which was not preserved in his own herbarium; or (2) to a specimen in the herbarium of Linnaeus but not cited by him, frequently without data and the history of which is entirely unknown, but one which bears his naming.

To test this matter let us suppose that an American author a number of years ago in a descriptive list of some collection not in his own herbarium, referred some particular specimen to some previously described species; then after a space of years let us suppose that in another work he gave a specific reference to his earlier publication and in this second work assigned a binomial name to such plant; let us further suppose that in his own herbarium at the time of the publication of his second work he had a sheet containing a specimen without data of any kind on which he wrote the binomial name given in his second work, but that he did not refer to such specimen in such second work; let us further suppose that this specimen represented a species other than the plant described in the first work. On such a state of facts I believe that all will agree that the binomial name in the author's second work should be applied to the plant described in the author's first work and should not be applied to the plant represented in his herbarium.

The above suppositious case represents a condition which is of frequent occurrence in dealing with Linnaean species of American plants, where he cites material collected by Clayton, and writers sadly led astray by the glamour of the Linnaean herbarium have reached results in identifying his species which would never have been thought of in other connections.

In such cases it seems to me that we should apply the Linnaean names to the specimens collected by Clayton; that we should follow certainly rather than uncertainly, definitely cited specimens rather than specimens merely named in an author's herbarium.

Let us apply the above to the following concrete cases:

(1) PRUNUS VIRGINIANA L. Sp. Pl. 473. 1753.

The original publication by Linnaeus reads as follows:

"2. PRUNUS floribus racemosis, foliis deciduis basi antice glandulosis.

Cerasus sylvestris, fructu nigricante in racemis longis pendulis phytolaccae instar congestis. *Gron. virg.* 54. *Roy. lugdb.* 537.

Cerasi similis arbuscula mariana, padi folio, flore albo parvo racemoso. *Pluk. mant.* 43. *t.* 339. *Catesb. car.* 1. *p.* 28. *t.* 28.

Habitat in Virginia."

The Clayton specimen cited from Gronovius is *Prunus serotina* Ehrh.

The only specimen in the Linnaean herbarium is *Prunus nana* DuRoi. A specimen was in the Linnaean herbarium in 1753. According to information furnished me by the late Dr. B. D. Jackson, there are no data of any kind whatsoever in connection with this specimen (a flowering one of which I have a photograph) to show who collected it or from where it came. It is entirely probable that it came from a cultivated plant in the Upsala Garden, because *Prunus virginiana* was listed as cultivated there in 1753 (Hojer, Dem. Pl. in Hort. Ups., 13), but this is only a supposition on my part.

The citation from Plukenet refers to *Itea virginica* L. and the citation from Catesby to *Prunus caroliniana* (Mill.) Ait. These references were cancelled by Linnaeus (Sp. Pl. Ed. 2) and can be disregarded. (See Torrey & Gray, Fl. N. Am. **1:** 410.)

It will be noted that the Linnaean specific name was taken from the Clayton specimen, it being the only one cited from Virginia. It will be noted also that Linnaeus gave no description of his own, except such as is contained in his polynomial name. This applies to either *Prunus serotina* Ehrh. or to *Prunus nana* DuRoi; and as a matter of fact merely followed a system he adopted for naming various species of *Prunus*, his names running (1) "Prunus floribus racemosis, foliis deciduis basi subtus biglandulosis"; (2) "Prunus floribus racemosis, foliis deciduis basi antice glandulosis"; (3) "Prunus floribus racemosis, foliis sempervirentibus eglandulosis," etc.

Under these circumstances it seems to me that Miller, DuRoi, Wangenheim, Marshall, Aiton, Walter, Poiret, Pursh, Bigelow, Elliott and numerous more recent writers have been correct in applying the Linnaean name to the black cherry (*Prunus serotina* Ehrh.) and I cannot follow Prof. Fernald's contrary course based on partial information. (Rhodora **18:** 140.)[1]

(2) Aster novae-angliae L. Sp. Pl. 875. 1753.

The original publication by Linnaeus is as follows:

[1] It may be here noted that a strikingly similar problem is involved in *Quercus rubra* L. (Sp. Pl. 996). The specimens in the Linnaean Herbarium so named by Linnaeus are specimens of *Quercus coccinea* Wang. (Sargent in Rhodora **18:** 45–6), and the Linnaean polynomial name applies to them as well as to other related species. However, they are not cited or referred to by him, altho they were apparently in his herbarium in 1753. Under these circumstances Sargent disregarded these specimens and applied the Linnaean name to the Clayton material which was directly cited by Linnaeus. It seems to me that in so doing he was quite correct. (See Rhodora **17: 39–40** and **18:** 45–8.)

"15. ASTER foliis lanceolatis alternis integerrimis semiamplexicaulibus, floribus terminalibus. *Hort. cliff.* 408. *Gron. virg.* 100. *Roy. lugdb.* 166.

Aster novae angliae altissimus hirsutus, floribus amplis purpuro-violaceis. *Herm. par.* 98. *t.* 98.

Aster novae angliae altissimus hirsutus, floribus omnium maximis purpuro-violaceis. *Tournef. inst.* 482.

Habitat in Nova Anglia. ♃

Caulis *fuscus.* Pedunculi *imbricati foliolis.* Corollae *radius caeruleus.*"

The earlier citations given by Linnaeus refer to the plant commonly passing as *Aster novae-angliae* L.

The specimen in the Linnaean herbarium is of *Aster grandiflorus* L. (Gray, Proc. Am. Acad. **17:** 165. 1882). A specimen (probably this) was in the Linnaean herbarium in 1753.

The eight words of description by Linnaeus apply to *Aster grandiflorus* L. and not to *Aster novae-angliae* L. as ordinarily understood.

Here we would undoubtedly have applied the Linnaean name to the plant which is represented in his herbarium and to which his few words of original description apply, were it not for the fact that he took his specific name from the plant of earlier authors, in fact one which he himself had dealt with in the Hortus Cliffortianus. But as far as I can see the case is much stronger for applying the name *Aster novae-angliae* to *Aster grandiflorus* than is the case for applying the name *Prunus virginiana* to the choke-cherry.

(3) Acalypha virginica L. Sp. Pl. 1003. 1753.

The original publication by Linnaeus reads as follows:

"1. ACALYPHA involucris femineis cordatis incisis, foliis ovato-lanceolatis petiolo longioribus. *Hort. ups.* 290. *Fl. zeyl.* 342.

"Acalypha foliis ovato-lanceolatis, involucris femineis obtusis. *Hort. cliff.* 495. *Gron. virg.* 116.

"Mercurialis tricoccos hermaphroditica s. ad foliorum juncturas e foliolis cristatis julifera simul & fructum gerens. *Burm. zeyl.* 248. *t.* 99. *f.* 4. (Should be *Pluk. phyt.*)

"*Habitat in* Zeylona, Virginia. ⊙"

Investigation has shown that the only specimen of this species in the Linnaean herbarium is without data of any kind. Of this specimen I have received photographs. It is highly probable that it was taken from the Upsala Garden, but this is at best only a guess. Mueller's definite statement that it came from the Upsala Garden referred to by Mr. Weatherby in his very thoughtful study of this species and its allies (Rhodora **29:** 197) was not justified as far as

I have been able to find out. According to Weatherby (l. c. 196–7) this specimen represents one species, and the Clayton specimen from Virginia cited by Linnaeus represents another. Had we an authentic specimen from the Upsala Garden we would be confronted with the choice of applying the name of Linnaeus either to such specimen or to the specimen collected by Clayton from which he took his specific name. In that case it seems to me that the latter course would have been the correct one. But when in addition we find that there is no authentic material preserved from the Upsala Garden, it seems to me very plain that we must apply the Linnaean name to the Clayton specimen.

(4) SCIRPUS CAPITATUS L. Sp. Pl. 48. 1753.

The original publication by Linnaeus reads as follows:

"5. SCIRPUS culmo tereti nudo setiformi, spica subglobosa. Scirpus culmo setaceo nudo, spica subglobosa. *Gron. virg.* 12. *Habitat in* Virginia."

The Clayton specimen cited from Gronovius is *Eleocharis tenuis* (Willd.) Schultes.

The only specimen in the Linnaean herbarium is one of *Eleocharis obtusa* (Willd.) Schultes. This was one of those specimens "obtained after 1767, or * * by some accident not recorded by Linné" (Jackson).

Dr. Blake (RHODORA **20**: 24) ignored the specimen in the Linnaean herbarium and applied the Linnaean name to the Clayton material. In this it seems to me that he was entirely correct.

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THE GENUS TRISETUM IN AMERICA

FATHER LOUIS-MARIE O. C.

(Continued from page 222)

TRISETUM OREOPHILUM Louis-Marie, var. **Johnstonii**, var. n. A typo differt panicula cylindrica (3 cm. long., 1 cm. lat.), exserta; spiculis 3-floris; arista maxime variabili: a mucrone vix 1 mm. long. ad normalem 4 mm. long. divaricatam aristam; pallida canescentia laminarum vaginarumque.

Differing from the type by panicle (3 cm. long, 1 cm. wide) cylindrical, exserted; spikelets 3-flowered; awn very variable: from a short (less than 1 mm. long.) beak to a normal (4 mm. long) divaricate one; by the canescent pilosity of the blades and sheaths.